



PCT09

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/889,874

DATE: 02/25/2002
TIME: 10:51:11

Input Set : A:\13384-002001.TXT
Output Set: N:\CRF3\02252002\I889874.raw

ENTERED

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4 <110> APPLICANT: Morgan, James Alun Wynne
5       Jarrett, Paul
6       Ellis, Debbie
7       Ousley, Margaret Anne
9 <120> TITLE OF INVENTION: BIOLOGICAL CONTROL OF NEMATODES
12 <130> FILE REFERENCE: 13384-002001
14 <140> CURRENT APPLICATION NUMBER: 09/889,874
15 <141> CURRENT FILING DATE: 2001-07-23
17 <150> PRIOR APPLICATION NUMBER: PCT/GB00/00219
18 <151> PRIOR FILING DATE: 2000-01-24
20 <150> PRIOR APPLICATION NUMBER: GB 9901499.5
21 <151> PRIOR FILING DATE: 1999-01-22
23 <160> NUMBER OF SEQ ID NOS: 52
25 <170> SOFTWARE: FastSEQ for Windows Version 4.0
27 <210> SEQ ID NO: 1
28 <211> LENGTH: 662
29 <212> TYPE: PRT
30 <213> ORGANISM: Xenorhabdus bovienii
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35 Glu Glu Phe Trp His Gly Asp Lys Gln Ala Phe Pro Pro Phe Thr Cys
36      20          25          30
37 Arg Phe Thr His Phe Asp Pro Asp Lys Glu Gln Asp Val Thr Leu Val
38      35          40          45
39 Pro Ser Thr Glu Glu Ala Tyr Trp Leu His Arg Ala Leu Gln Gly Gln
40      50          55          60
41 Pro Leu His Ser Glu Val Tyr Gly Asp Asp Gly Thr Ala Gln Ala Gly
42 65      70          75          80
43 Ile Pro Tyr Thr Val Met Asp Ser Arg Pro Gln Val Arg Leu Leu Thr
44      85          90          95
45 Gly Leu Pro Gly Asn Ser Pro Thr Val Trp Pro Ser Val Ile Glu Gln
46      100         105         110
47 Arg Thr Trp Gln Tyr Glu Arg Ile Ala Asp Asp Pro Gln Cys His Gln
48      115         120         125
49 Gln Val Val Leu Asn Ser Asp Arg Tyr Gly Phe Pro Arg Glu Thr Val
50      130         135         140
51 Asp Ile Ala Tyr Pro Arg Arg Pro Lys Pro Ala Val Ser Pro Tyr Pro
52 145      150         155         160
53 Asp Thr Leu Pro Ala Thr Leu Phe Asp Ser Ser Tyr Asp Glu Gln Gln
54      165         170         175
55 Gln Gln Leu Arg Leu Thr Arg Gln Arg Gln His Tyr His His Leu Thr
56      180         185         190

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57 Asp Thr Glu His Gln Val Leu Gly Leu Pro Asp Val Met Arg Ser Asp
58 195 200 205
59 Ala Trp Gly Tyr Pro Ala Ala Arg Val Pro Arg Glu Gly Phe Thr Leu
60 210 215 220
61 Glu Asp Leu Leu Ala Glu Asn Ser Leu Ile Ala Pro Gly Thr Pro Leu
62 225 230 235 240
63 Thr Tyr Leu Gly His Gln Arg Val Ala Tyr Thr Gly Thr Thr Gly Thr
64 245 250 255
65 Glu Glu Lys Pro Thr Arg Gln Ala Leu Val Ala Tyr Thr Glu Thr Ala
66 260 265 270
67 Val Phe Asp Glu Leu Ala Leu Gln Ala Phe Asn Gly Thr Leu Ser Pro
68 275 280 285
69 Glu Ala Leu Glu Lys Lys Leu Ile Glu Ser Gly Tyr Leu Ser Val Pro
70 290 295 300
71 Arg Pro Phe Asn Thr Gly Ala Glu Ser Ala Val Trp Val Ala Arg Gln
72 305 310 315 320
73 Gly Tyr Thr Asp Tyr Gly Gly Ser Glu Ala Phe Tyr Arg Pro Leu Ala
74 325 330 335
75 Gln Arg Thr Thr Val Gln Ile Gly Lys Asn Thr Leu His Trp Asp Thr
76 340 345 350
77 His Tyr Cys Ala Val Val Arg Met Gln Asp Ala Ala Gly Leu Tyr Thr
78 355 360 365
79 Asp Ala Ala Tyr Asp Tyr Arg Phe Leu Thr Pro Val Gln Ile Thr Asp
80 370 375 380
81 Ala Asn Asp Asn Gln Gln His Ile Thr Leu Thr Ala Leu Gly Gln Val
82 385 390 395 400
83 Ser Ser Gly Arg Phe Trp Gly Thr Glu Glu Gly Thr Pro Gln Gly Tyr
84 405 410 415
85 Thr Pro Pro Glu Asp Arg Pro Phe Thr Pro Pro Ser Ser Val Ala Glu
86 420 425 430
87 Ala Leu Asp Leu Lys Pro Asp Leu Pro Val Ala Asn Cys Met Val Tyr
88 435 440 445
89 Ala Pro Leu Ser Trp Met Pro Leu Ala His Thr Tyr Gln Glu Tyr Ile
90 450 455 460
91 Ala Gly Phe Thr Trp Gln Ala Leu Leu Asp Ala Gly Val Val Thr Glu
92 465 470 475 480
93 Asp Lys Arg Val Cys Ala Leu Gly Phe Arg Arg Trp Val Gln Arg Gln
94 485 490 495
95 Gly Ile Val Leu Asn Gly Gln Ala Leu Ala Asp Ser Arg Glu Pro Val
96 500 505 510
97 His Val Leu Thr Leu Ala Thr Asp Arg Tyr Asp Thr Asp Pro Asp Gln
98 515 520 525
99 Gln Leu Arg Lys Ser Val Thr Tyr Ser Asp Gly Phe Gly Arg Leu Leu
100 530 535 540
101 Gln Ser Ala Val Tyr His Ala Pro Gly Glu Ala Trp Gln Arg Ala Ala
102 545 550 555 560
103 Asp Gly Ser Leu Ile Thr Asp Ala Lys Gly Ala Pro Leu Val Ala His
104 565 570 575
105 Thr Ala Thr Arg Trp Ala Val Ser Gly Arg Thr Glu Tyr Asp Gly Lys

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106	580	585	590	
107	Gly Gln Pro Val Arg Thr Tyr Pro Pro Phe Phe Leu Asn Ala Trp Gln			
108	595	600	605	
109	Tyr Leu Ser Asp Asp Ser Ala Arg Gln Asp Leu Asn Ala Asp Thr His			
110	610	615	620	
111	Arg Tyr Asp Pro Leu Gly Arg Glu Tyr Gln Val Arg Thr Ala Lys Gly			
112	625	630	635	640
113	Tyr Leu Arg Gln Asn Arg Leu Thr Pro Trp Phe Val Val Asn Glu Asp			
114	645	650	655	
115	Glu Asn Asp Thr Leu Ser			
116	660			
118	<210> SEQ ID NO: 2			
119	<211> LENGTH: 105			
120	<212> TYPE: PRT			
121	<213> ORGANISM: Xenorhabdus bovienii			
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125	1 5 10 15			
126	Ile Gly Tyr Leu Asn Gly Gly Gln Glu Ala Val Ile Ile Gly Gly Ile			
127	20 25 30			
128	Arg Val Gln Thr Arg Arg Ile Leu His Thr Asp Asp Arg Thr Val Met			
129	35 40 45			
130	Gly Ile Pro Met Glu Gly Val Phe Ala Asn Leu His Arg Arg Pro Leu			
131	50 55 60			
132	Ser Gln Arg Thr Val Lys Arg Leu Arg Pro Ala Val Ile Gly Ile Ser			
133	65 70 75 80			
134	Leu Thr Gly Asp Pro Asp Arg Arg Phe Arg Thr Gly Ile Glu Trp Ala			
135	85 90 95			
136	Trp Asn Arg Gln Ile Thr Arg Leu Asp			
137	100 105			
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140	<211> LENGTH: 971			
141	<212> TYPE: PRT			
142	<213> ORGANISM: Xenorhabdus bovienii			
144	<400> SEQUENCE: 3			
145	Ser His Leu Pro Ala Arg Tyr Gly Arg Leu Thr Thr Leu Ser Arg			
146	1 5 10 15			
147	Lys Gly Phe Met Thr Val Asn Arg Gly Asp Asn Leu His Gln Lys Thr			
148	20 25 30			
149	Pro Glu Val Thr Val Leu Asp Asn Arg Gly Leu Thr Val Arg Glu Leu			
150	35 40 45			
151	Arg Tyr His Arg His Pro Asn Thr Pro Thr Thr Asp Glu Arg Ile			
152	50 55 60			
153	Thr Arg His Arg Phe Thr Leu Ser Gly Gln Leu Ala His Ser Ile Asp			
154	65 70 75 80			
155	Pro Arg Leu Phe Asp Leu Gln Gln Thr Asp Asn Thr Val Asn Pro Asn			
156	85 90 95			
157	Met Ile Tyr Asp Thr Ala Leu Thr Gly Glu Val Val Arg Thr Arg Ser			
158	100 105 110			

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159 Val Asp Ala Gly Asn Asp Leu Ile Leu Asn Asp Ile Thr Gly Arg Pro
160 115 120 125
161 Val Leu Ala Ile Asn Ala Thr Glu Val Thr Arg Thr Trp Gln Tyr Glu
162 130 135 140
163 Asn Asp Thr Leu Pro Gly Arg Pro Leu Ser Ile Thr Glu Gln Pro Ala
164 145 150 155 160
165 Gly Glu Ala Gly Arg Ile Thr Glu Arg Phe Val Trp Ala Gly Asn Ser
166 165 170 175
167 Gln Ala Glu Lys Asn Ser Asn Leu Ala Gly Gln Cys Val Arg His Tyr
168 180 185 190
169 Asp Thr Ala Gly Leu Asn Gln Thr Asp Ser Ile Ala Leu Asn Gly Ile
170 195 200 205
171 Pro Leu Ser Val Thr Arg Gln Leu Leu Pro Asp Gly Thr Asp Ala Asp
172 210 215 220
173 Trp Gln Gly Asn Asn Glu Pro Ala Trp Asn Asp Arg Leu Ala Pro Glu
174 225 230 235 240
175 Asn Phe Thr Thr Leu Ser Thr Ala Asp Ala Thr Gly Ala Val Leu Thr
176 245 250 255
177 Thr Thr Asp Ala Ala Gly Asn Leu Gln Arg Val Ala Tyr Asp Val Ala
178 260 265 270
179 Gly Leu Leu Thr Gly Ser Trp Leu Arg Leu Ala Gly Gly Thr Glu Gln
180 275 280 285
181 Val Ile Val Lys Ser Leu Thr Tyr Ser Ala Ala Gly Gln Lys Leu Arg
182 290 295 300
183 Glu Glu His Gly Asn Gly Val Val Thr Thr Tyr Thr Tyr Glu Pro Glu
184 305 310 315 320
185 Thr Gln Arg Leu Val Gly Ile Lys Thr Lys Arg Pro Gln Gly His Ala
186 325 330 335
187 Gln Gly Thr Lys Val Leu Gln Asp Leu Arg Tyr Glu Tyr Asp Pro Val
188 340 345 350
189 Gly Asn Val Val Lys Val Thr Asn Asp Ala Glu Val Thr Arg Phe Trp
190 355 360 365
191 Arg Asn Gln Lys Val Val Pro Glu Asn Thr Tyr Val Tyr Asp Ser Leu
192 370 375 380
193 Tyr Gln Leu Val Ser Ala Thr Gly Arg Glu Met Ala Asn Ile Val Gln
194 385 390 395 400
195 Gln Ser Thr Leu Leu Pro Thr Pro Ser Leu Ile Asp Ser Ser Thr Tyr
196 405 410 415
197 Ser Asn Tyr Ser Arg Thr Tyr Asn Tyr Asp Arg Gly Asp Asn Leu Thr
198 420 425 430
199 Gln Ile Arg His Ser Ala Pro Ala Thr Gly Asn Ser Tyr Thr Thr Asp
200 435 440 445
201 Ile Thr Val Ser Asp His Ser Asn Arg Ala Val Leu Asp Thr Leu Thr
202 450 455 460
203 Asp Asp Pro Ala Lys Val Asp Ala Leu Phe Thr Ala Gly Gly His Gln
204 465 470 475 480
205 Ile Pro Leu Gln Pro Gly Gln Asn Leu Val Trp Thr Pro Arg Gly Glu
206 485 490 495
207 Leu Leu Lys Val Ala Pro Val Val Arg Asp Gly Gln Ile Ser Asp Gln

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208	500	505	510
209	Glu Ser Tyr Arg Tyr Asp Ala Ala Ser Gln Arg Ile Ile Lys Thr His		
210	515	520	525
211	Val Gln Gln Thr Ala Asn Ser Ser Gln Ala Gln Ser Thr Leu Tyr Leu		
212	530	535	540
213	Pro Gly Leu Glu Arg His Thr Thr Ile Asn Gly Thr Thr Val Lys Glu		
214	545	550	555
215	Val Leu His Val Ile Thr Ile Gly Glu Ala Gly Arg Ala Gln Val Arg		560
216	565	570	575
217	Val Leu His Trp Glu Asn Gly Lys Pro Gly Ala Ile Ser Asn Asn Gln		
218	580	585	590
219	Met Arg Tyr Ser Tyr Asp Asn Leu Ile Gly Ser Ser Gly Leu Glu Val		
220	595	600	605
221	Asp Gly Asp Gly Gln Ile Ile Ser Met Glu Glu Tyr Tyr Pro Tyr Gly		
222	610	615	620
223	Gly Thr Ala Val Trp Thr Ala Arg Ser Gln Thr Glu Ala Asp Tyr Lys		
224	625	630	635
225	640	645	650
226	Thr Val Arg Tyr Ser Gly Lys Glu Arg Asp Ala Thr Gly Leu Tyr Tyr		655
227	660	665	670
228	Tyr Gly Tyr Arg Tyr Tyr Gln Pro Trp Ala Gly Ser Trp Leu Ser Ala		
229	675	680	685
230	Asp Pro Ala Gly Thr Ile Asp Gly Leu Asn Leu Tyr Arg Met Val Arg		
231	690	695	700
232	Arg Tyr Val Phe Pro Phe Ile His Glu Asp Arg Ile Phe Arg Leu		
233	705	710	715
234	720	725	730
235	Ala Ser Ala Asn Val Tyr Arg Thr Glu His Asn Lys Ser Asp Ile Ile		
236	735	740	745
237	750	755	760
238	Ala Val Val Glu Asp Lys Ala Leu Asp Ser Lys Leu Phe Thr Asn Ser		
239	765	770	775
240	Ile Glu Gln Phe Phe Lys Pro Lys Gly Lys Ala Ile Leu Lys Gly		
241	780	785	790
242	Ser Pro Asp Ile Lys Glu Arg Leu Leu Asn Asn Ile Val His Asp Leu		
243	795	800	805
244	Ser Asn Met Gln Val Gly Asp Gln Leu Tyr Val Asn Ala His Gly His		
245	810	815	820
246	Ser Ala Lys Pro Phe Phe Tyr Ser Asp Ser Gly Tyr Ser Lys Ile Ile		
247	825	830	835
248	Met Glu Gln Leu Gln Arg Gly Ala Asn Tyr Val Ala Lys Asp Leu Val		
249	840	845	850
250	Asn Lys Phe Lys Leu Pro Glu Asn Ala Thr Ile Lys Ile Ser Thr Cys		
251	855	860	865
252	His Ser Ala Glu Gly Lys Gly Ala His Ile Thr Val Thr Ser Thr Gly		
253	870	875	880
254	Thr Asn Glu Lys Met Arg Tyr Ser Ser Ile Ile Glu Asn Lys Gly Glu		
255	885	890	895
256	Leu		

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/889,874

DATE: 02/25/2002
TIME: 10:51:12

Input Set : A:\13384-002001.TXT
Output Set: N:\CRF3\02252002\I889874.raw